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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/036,877	01/04/2002	James Manio Silva	RD-29276	5166

6147 7590 07/27/2004

GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
PATENT DOCKET RM. BLDG. K1-4A59
NISKAYUNA, NY 12309

EXAMINER

CINTINS, IVARS C

ART UNIT	PAPER NUMBER
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1724

DATE MAILED: 07/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/036,877

Applicant(s)

SILVA ET AL.

Examiner

Ivars C. Cintins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 May 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
4a) Of the above claim(s) 27-29 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-26 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-26 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Silva et al. (U.S. Patent No. 6,426,008) or WO 01/14252 in view of Silva (U.S. Patent No. 6,214,235).

As pointed out in the previous Office action, each of the primary references discloses purifying brine for use in a membrane electrolyzer (see col. 1, line 10 of Silva et al.; and page 1, lines 5-6 of WO 01/14252) by subjecting this brine to the recited pH adjustments and functionalized resin treatments at the recited conditions (see col. 13, line 12 through col. 14, line 32 of Silva et al.; and page 23, line 3 through page 24, line 28 of WO 01/14252). Accordingly, each of these primary references discloses the claimed invention with the exception of the recited polishing treatment, and the exact composition of the brine (claims 14-26). The secondary reference discloses that brines of the type recited (see col. 3, lines 9-10) must be treated with adsorbents of the type recited (see col. 2, lines 19-20 and 23) if these brines are to be used in membrane electrolyzers (see col. 1, lines 18-26 and 31-24). It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the brine of the secondary reference for the brine of either primary reference, since this secondary reference brine is capable of functioning, after the appropriate adsorbent treatment, in a membrane electrolyzer in substantially the same manner as the brine of either primary reference, to produce substantially the same results. Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to subject this brine to the purification treatment of either

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primary reference, and then to the additional adsorbent treatment of the secondary reference (i.e. polishing), in order to allow this brine to be used in the membrane electrolyzer of either primary reference (see col. 1, line 10 of Silva et al.; and page 1, lines 5-6 of WO 01/14252).

Claims 1-4 and 7-13 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Silva et al. or WO 01/14252 in view of Vaughn et al. (U.S. Patent No. 4,747,957). As pointed out in the previous Office action, each of the primary references discloses the claimed invention with the exception of the recited polishing treatment. Vaughn et al. discloses a similar process for purifying brine to be used in a chlor-alkali cell (col. 6, line 34), and teaches subjecting this brine to a polishing treatment after a conventional ion exchange resin treatment, in order to catch any hardness values that escape through the ion exchanger (col. 6, lines 25-31). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to subject the treated brine of either primary reference to the polishing treatment of Vaughn et al., in order to obtain the advantages disclosed by this secondary reference for the process of either primary reference.

Applicant's arguments filed May 11, 2004 have been noted and carefully considered but are not deemed to be persuasive of patentability. Applicant argues that there is no suggestion in the prior art that the order of the brine purification steps is critical to the successful purification of the brine. Applicant also refers to Table 1 of the specification in an attempt to demonstrate new and unexpected results for the claimed invention. It is pointed out, however, that Silva '235 clearly teaches subjecting brine to activated carbon or pyrolyzed sulfonated polystyrene divinylbenzene resin treatment just before it is recycled to the membrane electrolyzer (see col. 1, lines 33-34); and therefore, one of ordinary skill in the brine purification art would have been

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motivated to subject the brine of either primary reference to the additional adsorbent treatment of Silva '235 just prior (i.e. as a polishing treatment) to its use in the membrane electrolyzer.

The comparative test data presented in Table 1 of the specification has been noted and carefully considered, but is not deemed to be persuasive of patentability for the claims in this application. Initially, Applicant should note that this comparative test data can have no effect on determining patentability for claims 1-26 because these claims are not limited to the specific material (i.e. pyrolyzed sulfonated polystyrene divinylbenzene resin) utilized in the polishing step. In any event, these test results do not appear to demonstrate that the mere order of treatments produces new and unexpected results. Applicant should note that "Method 2" would be expected to purify brine to a greater extent than "Method 1" since it contains an additional purification step (i.e. step D). As for the comparison between "Method 1" and "Method 3," which methods appear to include the same purification treatments, albeit in a different order, it is noted that the results presented in Table 1 fail to contain a comparison between these two treatments methods for the same brine stream. Treatment of an "Ultrapure" stream by Method 3 was not tested; and treatment of a "Recycle" stream by these two methods was never conducted on a stream having the same sodium gluconate content. Accordingly, the results contained in Table 1 are not deemed to be persuasive of patentability for claims 1-26.

Applicant also argues that the polishing step of Vaughn et al. employs ethylene/acrylic acid fibers to prevent break-through of hardness ions, and does not employ a carbonaceous adsorbent as employed by Applicants in the instant invention. Again, this argument has been noted and carefully considered, but is not deemed to be persuasive of patentability. It is pointed out that claims 1-4 and 7-13 merely recite a "polishing" step, and do not require the use of a

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carbonaceous adsorbent in this polishing step; and therefore, the fact that Vaughn et al. does not employ a carbonaceous adsorbent is not deemed to be relevant, or persuasive of patentability for these claims.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to I. Cintins whose telephone number is (571) 272-1155. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Duane Smith, can be reached at (571) 272-1166.

The centralized facsimile number for the USPTO is (703) 872-9306.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Ivars C. Cintins
Primary Examiner
Art Unit 1724

I. Cintins
July 25, 2004